

**IEEE CINCINNATI
SECTION
NEWSLETTER
JANUARY 2005**



JANUARY MEETING

**TO INFRINGE OR NOT TO INFRINGE, THAT IS
THE QUESTION**

DATE: Thursday, January 27, 2005

PLACE : Raffel's – 10160 Reading Road (see below for directions)

TIME : 5:30 p.m. to 7:00 p.m. - Social Time/Dinner
7:00 p.m. to 8:30 p.m. - Program

COST FOR DINNER: \$10.00 for Student Members
\$15.00 for Members
\$20.00 for Non-Members

MENU SELECTIONS: Baked Cod with Crab Topping, Hot Sliced Roast Beef in Gravy, Roasted Pork Loin with Dressing, Rice Pilaf, Red Skinned Mashed Potatoes, Vegetable Medley, Tossed Salad, Dinner Rolls and Butter, Assorted Cakes, Coffee, Tea Iced Tea, Soft Drinks. There is also a bar available for the purchase of alcoholic drinks. Raffel's is located at 10160 Reading Road, south of Glendale-Milford Road on the east side of Reading. Take I-75 to the Glendale-Milford Rd. Exit, go east on Glendale-Milford Road approximately 3/4 of a mile to Reading Rd. and turn right on Reading.

Please call the Cincinnati Section Voice Mailbox at **513-629-9380**, by **Noon, Tuesday, Jan. 25, 2005** if you plan to attend. Please leave your Name, IEEE Member Number, and a daytime telephone number. You can also make a reservation by e-mailing our Arrangements Chair, Charlie Nash, at cnash@ieee.org.

ABOUT THE PRESENTATION: Attorneys Douglas Scholer and C. Richard Eby, both electrical engineers, will present an overview of the U.S. Patent system including such topics as the application process, when it is too late to apply, what to do to protect your ideas before they are patented, and how to protect them once they are patented. In addition, they will explore Internet resources for accessing patent databases, publications, manuals, and other useful information. It is sure to be an extremely interesting meeting for all of our members; from students to retirees.

ABOUT THE SPEAKERS: Douglas Scholer is an Associate with Wood, Herron & Evans and is involved in all phases of the firm's Intellectual Property practice, with a concentration in electrical technologies. Doug joined Wood, Herron & Evans in 1999 after five years of engineering experience at the Foreign Technology

Division of the U.S. Air Intelligence Agency. He received a Bachelor of Science degree in Electrical Engineering from the University of Notre Dame in 1994. He then obtained his Juris Doctor degree from the Salmon P. Chase College of Law at Northern Kentucky University in 2000. Doug is an active member of the Air Force Reserves as Captain, the Ohio Bar Association, Institute of Electrical and Electronic Engineers and Rotary International.

C. Richard Eby is a Senior Associate with Wood, Herron & Evans, and is registered to practice before the U.S. Patent and Trademark Office. Richard is active in all phases of U.S. and international patent, trademark and copyright prosecution, infringement studies, licensing and business counseling. He received a Bachelor of Science degree in Electrical Engineering from the University of Cincinnati in 1964 and a Juris Doctor from the Salmon P. Chase College of Law at Northern Kentucky University in 1968. He then obtained a Master Of Business Administration from Xavier University in 1987. Richard is an active member of the American and Cincinnati Bar Associations, the American and Cincinnati Intellectual Property Law Associations, and is an Emeritus member of the Association of Corporate Patent Counsel.

CHAIR'S MESSAGE

by Jim Everly, Section Chair

The January meeting of the IEEE Cincinnati Section will provide Section Members with an overview of the U.S. Patent system together with the patent application process. It should be of interest to all of our members from students to retirees.

Also, I would like to thank all of you who took the time to vote for Section Officers. Just in case you are wondering, the following are the election results for 2005 Section Officers:

Chair	Jim Everly
Vice Chair	Steve Olenick
Secretary	Ron Harbaugh
Treasurer	Laurie Tappel
Member-At-Large	Brian Resnick

In addition, we are looking for a Professional Activities Chair (PACE) for this year. If anyone is interested please send me an email. The telephone numbers and email addresses of Executive Committee members are listed at the end of the newsletter. Please do not hesitate to contact committee members and share your comments or suggestions on how to improve the IEEE Cincinnati Section.

The Executive Committee will meet on January 20, 2005 to plan programs for the remainder of the year. An updated meeting schedule will be available next month. If you have any suggestions for programs or tours, give me a call.

Remember, our mission is to serve the Section membership and the Societies that our members are part of. It is our goal to provide knowledge of new and emerging technologies that allow our members to maintain competitiveness and competency in their field.

Thank you for your support and continue to come to our meetings each month.

NEW MEMBERS

The following individuals are IEEE members who are new to our Section:

Yu Chen	William O'Rourke
Bobby D. Collier	Michael E. Pekar
Gregory P. Gilmore	Johannes H. Pieters
Daniel R. Hollingsworth	David L. Renz
William A. Hunt	Lesley M. Runyon
Chunyan Li	Erik Skogsbergh
Steve Lyle	Joseph C. Yeh
Judith Lynn	Penchuan Yu
Donna Marion	Junmei Zhong
Michael Matzko	

We wish to welcome these new members to our Section!!!

ENGINEERING HALL OF FAME

Pioneers of Electromechanical Information Processing:

John Patterson and William Burroughs

By Frederik Nebeker

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As 2004 draws toward a close, we celebrate the birthdays of two pioneers of electromechanical calculating: John Henry Patterson, who made the cash register a ubiquitous device, and William Burroughs, who invented the recording adding machine.

John Henry Patterson

John Henry Patterson was born near Dayton, Ohio on 13 December 1844. He graduated from Dartmouth College in 1867 and returned to Dayton, where, after trying a couple of other jobs, entered the coal business with his brother. In 1879, Dayton tavern owner James Ritty invented a cash register. Like Ritty, Patterson suspected that pilfering by clerks was a serious problem, so he installed a cash register at his business as well. The machine made a big difference and convinced Patterson that it could become an important asset for other businesses.

In 1884, Patterson bought controlling interest in Ritty's company. He renamed it the National Cash Register (NCR) in 1894. And while he made technical improvements to the cash register, more important perhaps were his innovations in business practice: he gave salesmen rigorous training, assigned them exclusive territories and established sales quotas. Thomas J. Watson, one of Patterson's salesmen, carried these business practices with him to the Computing-Tabulating-Recording Company, which he turned into the information processing giant, IBM.

Patterson also supported technological innovation. For example, Charles Kettering's motor development led to the electrification of the cash register. The motor needed to deliver high torque in short spurts, and it had to have a clutch mechanism to engage and disengage the counting wheels at precisely the right moment. (Shortly afterward, Kettering took advantage of this work and designed a motor for an automobile self-starter, which was introduced in the 1912 Cadillac.) When Patterson died in 1922, NCR dominated the cash register market worldwide and employed 10,000 people in its Dayton offices and factories.

William Seward Burroughs

Another inventor-entrepreneur was William Seward Burroughs, born 28 January 1855 in Auburn, New York. Having to support himself beginning at age 15, Burroughs worked at various jobs while working on his own inventions. As a bank clerk, he saw the need for calculating aids and developed a mechanical adding machine. What distinguished Burroughs' machine from other adding machines — such as that developed at about the same time by Dorr E. Felt — was that it printed the numbers added and the total.

In 1885, Burroughs formed the American Arithmometer Company. His first machines proved impractical, but in 1892, he completed an improved model and the company finally achieved success. In fact, it was growing rapidly at the time of Burroughs' death on 15 September 1898.

In 1905, American Arithmometer Company was renamed the Burroughs Adding Machine Company. It expanded its product line, and by 1908 offered 58 different machines. As with the cash register, electrification of the machines increased their speed, functionality and ease of use. Burroughs Adding Machine Company, later Burroughs Corporation, became one of the leading suppliers of office equipment.

THE CINCINNATI SECTION HAS A NEW SENIOR MEMBER

Mr. David J. Klotzkin, of the IEEE Cincinnati Section, was recently approved as our newest Senior Member. Congratulations, David !!!!

If you are interested in upgrading your membership to Senior Member status, please contact a member of the Executive Committee listed on the last page of this newsletter.

IEEE NANOTECHNOLOGY CONFERENCE TO BE HELD IN CINCINNATI

Please be advised that the IEEE Nanotechnology Council will sponsor the conference entitled "2006 6th IEEE Conference on Nanotechnology (IEEE-NANO) (#10419)". This conference will be held July 17-20, 2006 in Cincinnati, Ohio.

For further information, please contact,

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Institute for Defense Analyses
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or Conference Services Dept., at IEEE Operations Center at +1 732 562 3878.

IEEE-USA's President's Column

January 2005



Gerard A. Alphonse, Ph.D.
2005 IEEE-USA President

Fostering Relationships, Finding Solutions

Greetings to all. It is a great honor for me to have the opportunity to serve you as 2005 IEEE-USA president. I am pleased that we have a dedicated group of volunteers serving on the IEEE-USA Board of Directors, its Operating Committee, and the 20-plus committees under the four IEEE-USA vice presidents, as well as a talented and dedicated staff to carry out our programs. We hope to implement some outstanding programs this year.

Over the past several years, we have witnessed worldwide workforce shifts due to the pressures of globalization. Technical workforce issues, offshoring and guest worker visa abuses remain difficult problems. We seek a balance between the need of U.S. workers and engineers to preserve their jobs, and the need of industry to access the talent pool necessary to sustain economic growth. We seek fair treatment for H-1B visa holders, while also seeking to prevent employer abuses of the H-1B and L-1 programs.

We plan to gather major stakeholders from government, industry and academia, and technical workers to look at innovation and offshoring in an effort to discover equitable solutions that satisfy the needs of all parties. Such solutions could include increased R&D to maintain the U.S. technological lead, and incentives for companies that reinvest in their U.S. operations and workforce.

A recent Boeing Co. paper, “Ensuring Workforce Skills of the Future: The Birth to Work Pipeline,” perhaps best summarized the challenge offshoring presents to the United States: “As globalization drives businesses to create relationships that take advantage of human and capital resources without respect to borders, how will individual nations ensure their economic stability, national defense, and standard of living for their own citizens?”

We hope our innovation and offshoring forum can help to answer this question. To ensure the forum’s success, I have appointed a steering committee that has already begun to develop plans and make contacts with key members of Congress.

I want to promote a stronger relationship between IEEE-USA and the IEEE Regions and Sections outside the United States. For more than 30 years, IEEE-USA has developed programs to serve the professional needs of the IEEE’s U.S. members. These programs are numerous and include services such as salary surveys, job search programs, career activities and educational and training programs, as well as programs to promote and support legislation for the benefit of society. Many of these services are generic to engineering communities

everywhere in the world. Last year we initiated efforts to share our professional activities know-how with the IEEE worldwide. I intend to continue this outreach in 2005 in the hope that all IEEE members will benefit.

The IEEE Sections Congress will bring IEEE delegates from all over the world to Tampa, Fla., in October. We are working with Sections Congress planners on sessions and speakers in which delegates can discover parts of our programs they can model and adopt.

At the first IEEE-USA Operating Committee meeting this month, we plan to refine our high-priority activities for the year, including updating our strategic plan to align it with the IEEE's strategic goals.

IEEE-USA will continue to be your voice in Washington on career and technology policy issues, lobbying Congress to protect U.S. innovation and cyber-security, and providing federal lawmakers and Cabinet departments with advice and guidance. We will also continue our Congressional Advocacy Recruitment Effort (CARE) to facilitate your communication with your state representatives and those on Capitol Hill.

To learn more about what IEEE-USA is doing for you, please visit our Web site (www.ieeeusa.org), and don't hesitate to share your thoughts with me at galphonse1@comcast.net.

IEEE NEWS

THE LATEST ISSUE OF IEEE's "THE INSTITUTE" IS NOW AVAILABLE ON-LINE

The most current version of The Institute can be found at <http://www.ieee.org/theinstitute>

IN THIS ISSUE:

- Sections Reach Out to Prospective Engineers During EWeek. Just how interesting the engineering field can be is the message a number of IEEE sections will deliver to students across the United States during National Engineers Week. In New York, for example, the Mid-Hudson Section is sponsoring an engineering day on 23 February at the State University of New York, at New Paltz. About 500 high school students are expected for events that will include hands-on engineering projects and a session with local engineers who will answer questions about engineering careers and education. Find out more at <http://boldfish.ieee.org/u/eweek3s/04824637>
- The Fellows Class of 2005. Newly elected Fellow Yoshizumi Eto of Hitachi Kokusai Electric Inc. in Tokyo is just one of 268 IEEE members who have made noteworthy contributions to engineering, science, or technology. An IEEE member for 23 years, Eto was recognized for his contributions to digital high-definition television standards and recording technology, accomplishments that highlight his 38-year career as an engineer and manager. Meet the class of 2005 Fellows at <http://boldfish.ieee.org/u/fellows3t/04824637>
- Marketplace of Ideas: China Takes a Chip Off Big Blue. IBM sold its personal computer division in December for US\$1.75 billion to Lenovo Group Ltd., China's largest PC manufacturer. Does this change the way you think about the electronics capabilities of Chinese industry? Weigh in at institute@ieee.org
- Students, Scholarship Money for the Taking. College life for an engineering student can be grueling -- and expensive. But membership in the IEEE can help with the expenses, at least. Student members enjoy access to awards and scholarships based on a range of accomplishments, including doing well in design contests and being active in their student branches. Find out more at <http://boldfish.ieee.org/u/scholar3v/04824637>

- New Membership Grades for Students. A bylaw change passed by the Board of Directors in November divides the IEEE student member grade into two categories: graduate student member and student member. The change, effective in 2006, will allow new benefits for students to be developed and will provide incentive for people to join. Find out more at <http://boldfish.ieee.org/u/student3w/04824637>
- Attention, Women in Engineering: Canada Calling. Two years ago, the number of Women in Engineering groups in IEEE Region 7 (Canada) was, in round figures, well, zero. Today, after a commitment from the region's director and the tireless efforts of some dedicated volunteers, Canada has nine women's groups and is on track for more. Find out how the region boosted its numbers at <http://boldfish.ieee.org/u/canada3x/04824637>
- Thoughts for Victims of Tsunami Tragedy. IEEE members around the world are deeply saddened to learn of the devastation and loss of so many lives as a result of the recent earthquake and tsunami in South Asia. Although this disaster is centered in the Indian Ocean area, the impact is felt worldwide. The IEEE offers its heartfelt condolences to the many individuals directly affected by this tragedy.
- IEEE Members Receive Discount at the Embedded Systems Conference. Members who register early for the Embedded Systems Conference, to be held 6-10 March in San Francisco, can receive as much as a 10 percent discount off the registration fee. Early registration is encouraged; the amount of the discount will change on 18 January, 8 February, and 3 March. The earlier you register, the more you save. Visit <http://boldfish.ieee.org/u/embed3y/04824637> and use code UX20. If you are planning to attend, IEEE Spectrum will be presenting the Technology in the Service of Society Award at the EE Times ACE Awards Gala. To attend the gala, please visit <http://boldfish.ieee.org/u/award3z/04824637>.

IEEE-USA PROVIDES \$50,000 TO SUPPORT ENGINEERING PUBLIC AWARENESS

WASHINGTON (30 December 2004) -- Three programs designed to promote public awareness of engineers and engineering received \$50,000 from the IEEE-USA Board of Directors at its last meeting of the year in San Antonio. The programs appeal to a variety of audiences using targeted media: special events (for youngsters); movies (for youngsters and young adults); and television news (for adults and the public-at-large). On 17 November, the Board also supported in principle the IEEE emeritbadge program "to provide a global non-discriminatory precollege technology education program for boys and girls."

As part of the \$50,000 allotment, the IEEE-USA Board of Directors allocated \$30,000 to support two Engineers Week 2005 events including continuation of the Family Day activity to be held on Saturday, 19 February, at the National Building Museum in Washington, D.C. The hands-on opportunity helps youngsters appreciate how things work and grasp fundamental engineering principles. In 1993, with the EWeek Committee, the IEEE launched the first EWeek Family Night at Intelsat.

In 2004, IEEE-USA and BE&K provided the bulk of funding to continue Family Day, when the IEEE led EWeek with Fluor Corp. More than 8,500 youngsters and adults broke the previous record for attendance at any event at the Building Museum. Youngsters interacted with Washington-area engineers to build towers, compete in a robot competition, explore a model of the Mars Rover, and meet PBS' "Zoom Into Engineering" cast. The EWeek Committee is working with engineering society volunteers in Washington to assume financial and organizational responsibility for Family Day as soon as 2006.

Also in support of EWeek 2005 (20-26 February), IEEE-USA underwrote the preparation of animated slides to promote "Introduce a Girl to Engineering Day." The slides will be shown in 157 Regal Cinema theatres in eight major cities prior to and including Engineers Week: Los Angeles/Long Beach 26; San Francisco/Hacienda

Crossings; New York/Union Square; Atlanta/Hollywood 24; Philadelphia/King of Prussia; Washington/Gallery Place Stadium 14; Chicago/Lincolnshire; Dallas/Fossil Creek; and Boston/Bellingham.

EWeek 2005 "Introduce a Girl to Engineering Day," now in its fifth year, is scheduled for Thursday, 24 February. The campaign encourage engineers, particularly women, to make the world of engineering "come alive" for girls. Since its inception, an estimated one-million girls have experienced engineering firsthand each year. IEEE-USA is also lending its support to a planned United Nations activity in support of EWeek 2005 Girl Day, having spearheaded the first such activity with EWeek in 2004.

In addition, the Board provided \$20,000 for IEEE-USA-supported engineering features in American Institute of Physics syndicated news feeds for local news programs in the top 108 U.S. television markets. The "Discoveries and Breakthroughs" news service delivers twelve 90-second broadcasts with two audio tracks each month to the subscribing stations. IEEE-USA involvement will ensure that more engineering stories are included. An IEEE-USA staff member is now participating in weekly editorial planning teleconferences to provide leads to IEEE experts on IEEE technologies.

During 2004, "Discoveries" provided a realistic image of how science, technology, engineering and math professionals actively work to contribute to a better quality of life. News stories have covered improved technology that brings health benefits (38%), new technologies that facilitate daily life (19%), better medical procedures (12%), improved forecasting and air quality (12%), and answers to questions that we are curious about (11%).

IEEE-USA URGES 'SAFE SERVICING' OF HUBBLE SPACE TELESCOPE FOR HUMANKIND

WASHINGTON (30 December 2004) -- NASA should "strive to develop procedures, technology and equipment that would allow the safe servicing of the Hubble Space Telescope, including the possible use of tele-operated robots," according to an IEEE-USA position adopted by the organization's Board of Directors at its last meeting of the year. In its position adopted in San Antonio on 17 November, IEEE-USA stated: "NASA should continue planning and preparing for the [space shuttle] SM-4 [servicing] mission, while expert panels and the National Academy of Science develop their reports and the [servicing] issue is thoroughly reviewed." IEEE-USA stressed that it "supports exploring all possible avenues to prolong the useful life of the telescope for the benefit of science and humanity."

In an earlier letter to Congress on the Hubble Space Telescope, IEEE-USA President John Steadman said the organization "strongly supports the decision of NASA and the recommendations in the report by the National Academies to commit to a servicing mission to the Hubble that accomplishes the objectives of the originally planned SM-4 mission, including both the replacement of the present instruments with the two instruments already developed for flight...and the engineering objectives, such as gyroscope and battery replacements."

In his letter, Dr. Steadman noted that the Hubble telescope has provided fundamental new results in planetary science; led to the discovery of the most distant object in the solar system; provided more accurate estimates of the age of the universe; offered better measurements of the universe's rate of expansion; provided the deepest portrait of the visible universe; led to the discovery of new stars and dynamic phenomena in space; and offered new views of comets and black holes.

The IEEE-USA president observed that "unless repairs are made to Hubble's batteries and gyroscopes, the observatory will likely become inoperable as early as 2008."

IEEE Foundation Announces Online Grant Application

Grant seekers now have a new way to apply for a grant from the IEEE Foundation. Effective January 2005, the IEEE Foundation will only be accepting grant applications and project reports through its new, simple-to-use online forms. As in the past, the IEEE Foundation will consider projects that:

- Improve education in mathematics, science and technology from pre-university through continuing education;
- Preserve, study, or promulgate the history of IEEE-associated technologies;
- Recognize major contributions to these technologies and their applications; or
- Show promise of making a major contribution to the worldwide communities the IEEE serves or significantly advancing the profession.

The IEEE Foundation will be considering unsolicited applications in three rounds during 2005. The deadline dates are as follows:

<u>Application Due</u>	<u>IEEE Foundation Meeting</u>
<u>Date</u>	<u>Date</u>
January 7, 2005	March 11, 2005
April 15, 2005	June 17, 2005
September 16, 2005	November 18, 2005

To learn more about the IEEE Foundation's grant guidelines, and to submit an online application, visit <http://www.ieee.org/foundation>.

CALL FOR PAPERS

Introducing Africa's Electric Power Engineering Renaissance "A new contribution against global warming."

DURBAN, SOUTH AFRICA, JULY 11 - 15 2005

Inaugural 2005 Conference and Exposition in Africa

**Co-hosted by the University of KwaZulu Natal, ESKOM,
The Southern African Power Pool, and the SAIEE.**

This world-class IEEE PES inaugural international conference in Africa will focus on four main themes:

- Energy development without impacting on global warming.
- Extra long distance economical bulk power transmission.
- Security and quality of supply in national and regional electricity markets.
- Experiences in energy intensive industrial power consumption at the worlds lowest cost.

More details to follow as available on the PES Website: www.ieee.org/power

Original papers are invited in these areas. There will be several panel sessions as well as individual presentations. The conference will be supported by an exposition; country exhibits showing investment opportunities and OEM supplier exhibits in support of the themes above. Several IEEE Tutorials, poster sessions, technical visits and companion tours will be arranged.

Submission of papers: The working language of the conference is English. Abstracts are to be submitted as follows:

First page : title, authors' names, mailing address, phone, fax, and e-mail of every author, the corresponding author and the preferred area. Second page: Title and a one page abstract. Each accepted paper must be presented at the conference and the final manuscript must be accompanied by paid registration.

Deadlines for submission:

Abstracts: February 15, 2005

Notification of acceptance: April 1, 2005

Final manuscript due: May 1, 2005

All papers must be submitted in IEEE electronic format. Instructions and full information on the conference will be posted in due course on conference website.

Theme 1: Energy Development without impacting on Global Warming.

Global warming gathers concern. New strategies with new investments and a rethink on nuclear energy are required to halt the rising ocean temperatures. Africa offers large-scale giga-watt energy generation from the Central African rainfall catchment. Africa offers small-scale megawatt energy generation from new nuclear fail-safe technology.

- Africa has plans for run of the river large-scale hydroelectric energy generation.
- Africa has plans for pumped storage application.
- Africa has pilot engineered the pebble bed modular nuclear reactor for distributed generation application.

Theme 2: Extra Long Distance Economical Bulk Power Transmission.

Several thousand kilometers separate load centers from the remote low cost hydroelectric run of the river power generation sites. Extra high voltage HVAC and HVDC technologies have been engineered for reliable and economical bulk power transmission. Advances in power electronic engineering (FACTS devices) opens new opportunities for larger economical power transfers with stable power system control. The African continental grid emerges, will traverse many countries and many operating environments, all having unique stability and reliability challenges. New technical leadership is sought for the new emerging engineering projects.

- Africa has plans for extra high voltage 800 kV direct current transmissions; the project is technically doable for 6GW transfer over 4500km.
- Africa has plans for controlled series compensation at 765 kV HVAC.
- Africa has plans to recycle existing HVAC circuits for HVDC application; new HVDC engineering to alleviate transmission congestion, introduce electrical islands for enhanced power system controllability, to reduce power line servitudes; to increase existing investments by getting more power through the same installed conductor cross sectional area.

Theme 3: Quality and Security of Supply in National and Regional Electricity Markets.

Africa's innovative power pool model promotes the parallel and complimentary operations of bilateral contracting and competitive bidding for energy between buyers and sellers at a wholesale level. The model promotes security and reliability of supply. The performance to date has been exceptional and entire countries have reviewed their national energy plans to include cross border sourcing as a strategic economic option. Entire countries and demanding electrical processes at energy intensive customer plants are placed successfully on full dependability on external energy sources.

- Africa's Power Pool Model promotes and enhances regional energy trading.
- Africa's democracy supports customer choice and facilitates the delivery of lowest cost energy for consumption.
- Africa's measured quality of supply at customer terminals sets the international benchmark in managing customer service.

Theme 4: Experiences in Energy Intensive Power Consumption at the World's Lowest Cost.

Africa's has the capability to grow into being the energy intensive valley of the world; lowest cost and highest quality electrical energy being the competitive edge. With decades of experience in deep underground mining of gold and diamonds, surface mining of coal and platinum; and the making of liquid fuel from coal and aluminum from alumina; Africa is poised to take the next step in the beneficiation processing of precious materials.

- Africa has delivered on aluminum and has plans for additional large scale smelters
- Africa makes liquid fuel from coal; from natural gas; the large plants working successfully in co-generation with the electric utility.
- Africa needs downstream beneficiation for the various precious metals on hand; investment opportunities are unlimited and relocation of global energy intensive plants is welcome

THE LATEST ISSUE OF IEEE-USA's "TODAY'S ENGINEER" IS NOW AVAILABLE ON-LINE

The most current version of The Institute can be found at <http://www.todaysengineer.org>

IN THIS ISSUE:

- Conquering Change: Cross-Discipline and the Need for a Fold-Out Business Card: At various stages of your career, you will almost certainly find yourself on the bottom of one learning curve or another, challenged to climb it quickly. The good news is that as problem solvers, engineers probably more than any other professionals are well equipped to deal with change. <http://www.todaysengineer.org/2005/Jan/change.asp>
- Managing Conflict in a Small Team Setting: In a small-team setting, unresolved conflict can hamper productivity and deflate morale. By recognizing the drivers of conflict and learning how to communicate concerns, team members can work toward resolution and get their project back on track. <http://www.todaysengineer.org/2005/Jan/conflict.asp>
- Joining the IEEE Before Joining the Workforce Pays Off: When new graduates begin seeking career opportunities, it's often their IEEE student membership that gives them a leg up on other candidates. <http://www.todaysengineer.org/2005/Jan/membership.asp>
- Better Ethics Needed to Improve Energy Distribution: In October, several experts outlined and discussed the myriad factors involved in this new era of energy distribution at an IEEE-USA-cosponsored seminar at Notre Dame University on "Ethics and the Changing Energy Markets." Though early attempts to let open markets define the industry bordered on disastrous, many believe that things can settle down and run smoothly. <http://www.todaysengineer.org/2005/Jan/ethics.asp>
- GATS Mode 4 - The Stealth Proposal: The World Trade Organization's (WTO) 148 member countries established a General Agreement on Trade in Services (GATS) in hopes that it will encourage liberalization of trade in service markets, including engineering services. The goal is to stimulate economic growth, but definitions remain fuzzy and many proposals (including the U.S. proposal) aren't available for public review. What implications could GATS have on the careers of U.S. engineers? <http://www.todaysengineer.org/2005/Jan/GATS.asp>
- X Prize Gives Space Tourism a Solid Boost: When Burt Rutan and the crew of the privately funded SpaceShipOne took home the \$10 Million Ansari X Prize for successfully reaching space twice in a two-week period, they stoked interest in and support for the quest to open the final frontier to tourism and other commercial endeavors. <http://www.todaysengineer.org/2005/Jan/x-prize.asp>

Also in this issue:

- Engineering in Pop Culture: The Far-Reaching Effects of Global Positioning
- World Bytes: World Population Projections
- Capitol Shavings: Be an Informed Citizen
- Reader Poll: Would You Choose a Personal Savings Account?
- Reader Feedback

NEWS FROM IEEE EDUCATIONAL ACTIVITIES AND THE HISTORY CENTER (1st Quarter 2005)

REGISTER NOW FOR VINNY COMPETITION

Named after Leonardo da Vinci, VINNY is an award given to students in grades K-12 for the best one-minute videos explaining how science, technology, engineering, and mathematics (STEM) can help solve common global problems. VINNY is a worldwide video competition designed to build awareness of STEM. Teams of 3 students and 1 teacher will identify and research a global problem and discover ways that STEM can help solve it. The teams will create a one-minute video explaining the global problem and a possible STEM solution. There are 3 levels of competition: grades K-5, 6-8, and 9-12. The award is given in both English and Spanish, for a total of 6 categories and prizes.

The VINNY website is available at <http://vinny.pcs.cnu.edu>. The deadline for registration is February 15, 2005. VINNY is proudly sponsored by the NASA Center for Distance Learning, Christopher Newport University, and the Institute of Electrical and Electronics Engineers (IEEE). Funding for the project is providing by the IEEE Foundation.

CALL FOR 2005 EAB AWARD NOMINATIONS

The IEEE Educational Activities Board is accepting nominations of IEEE members for its annual awards. The deadline for nominations is 30 April 2005. Awards include: IEEE EAB Meritorious Achievement Award in Accreditation Activities; IEEE EAB Meritorious Achievement Award in Continuing Education; IEEE EAB Major Educational Innovation Award; IEEE EAB Pre-College Educator Award; IEEE EAB Meritorious Service Citation; IEEE EAB Employer Professional Development Award; And FOR THE FIRST TIME IN 2005 - IEEE EAB Society/Council Professional Development Award (PLEASE NOTE that the EAB Society/Council Professional Development Award is offered in odd-numbered years alternating with the Section Professional Development Award which is offered in even-numbered years).

For award descriptions, honorarium details, and nominations packets, visit <http://www.ieee.org/organizations/eab/EABAwards/callnominations-2005.htm> For more information, contact: Rae Toscano, Manager 1-732-562-5482; Karen Kleinschmidt, Administrator, 1-732-562-5493; Email: eab-awards@ieee.org.

RECORD NUMBER OF IEEE MILESTONES IN 2004

2004 saw seven Milestones dedications, a record! These came from around the globe, and several more exciting ones are in the pipeline for approval in early 2005. Although not yet nominated a Milestone by the IEEE New York Section, in December 2004 a ceremony was held marking the addition of Philosophy Hall at Columbia University to the U.S. National Historic Landmark Survey, having been nominated by the IEEE

History Center as part of a joint project with the U.S. National Park Service. Sections are urged to get involved in local history, particularly through the Milestones Program. More information can be found at http://www.ieee.org/organizations/history_center/milestones_program.html.

HISTORICAL PUBLICATIONS RELEASED

Also in October, the Guglielmo Marconi International Fellowship Foundation at Columbia University held their 30th anniversary banquet in Bologna, Italy, at which they presented a historical book they had commissioned from the IEEE History Center. Around the same time, Eta Kappa Nu celebrated their centennial with another historical work from the Center, this one underwritten by the IEEE Foundation.

ORAL HISTORIES UPDATE

The IEEE History Center continues to collect oral history interviews with important contributors to our fields, from every corner of the world. The Center now manages over 450 interviews, with more than one half available on the Web. They can be viewed at http://www.ieee.org/organizations/history_center/oral_histories.html. The entire set of History Center pages is searchable from the center's home page, http://www.ieee.org/organizations/history_center/index.html, if, say, one wanted to see if a particular country or region was mentioned. The Center has recently begun work on a project with the IEEE Electromagnetic Compatibility Society to collect more interviews in their field, in preparation for the EMC's 50th anniversary celebration in 2007.

IEEE SETF – INCORPORATING STANDARDS INTO UNDERGRADUATE PROGRAMS

Volunteers from the IEEE Educational Activities Board and Standards Association have come together and formed the IEEE Standards in Education Task Force (SETF). The goal of SETF is to help the electrical and computer engineering undergraduate programs with incorporating standards into the learning process. A grant from the IEEE Foundation was sought and supported for a needs survey and the development of proof of concept learning products during 2004 and 2005. Through the survey, roadblocks to the introduction of standards into the undergraduate learning process were identified, namely: (1) the scarcity of learning supplements to classroom instruction that would impart essential knowledge about standards and (2) the cost of access to appropriate standards. The survey respondents encouraged the creation of web-based tutorials on, case illustrations using, and a reference guide to standards, many of which are currently being developed by the SETF. These web-based learning products will be pilot tested at two academic institutions in 2005 and, after any refinements based upon the pilot testing, the web site will be made available on an open-access basis. More information about this project will be announced in the coming months.

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